Peabody, Daniel (EGLE)

From: Peabody, Daniel (DEQ)
Sent: Wednesday, March 6, 2019 1:48 PM
To: Johnson, Shannon D.; Draper, Cynthia E; Venne, Louise S
Cc: saric.james@epa.gov; Keiser, Jeff/MKE; Roberts, Keegan; Bennett, Brian; Kirchner, Scott; Gunderman, Brian (DNR); Diana, Matthew (DNR); John Kern
Subject: Proposed Variations to the LTM Plan
Attachments: Varying the LTM Program_03062019.pdf

Shannon,

As requested, attached is a write-up from the MDEQ that revisits some of the considerations and analyses that we had spoken about last June and July when variations to the LTM program were first proposed. If you'd like to discuss anything just let me know.

Thanks,

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Varying the LTM Program, Modelling Changes and Outcomes, and Determining Data Usability and Comparability for Trend Analysis.

In 2018, Wood proposed making changes to the long-term monitoring (LTM) program, particularly as it relates to the collection of young-of-year (YOY) smallmouth bass (SMB). Wood proposed substantially increasing the number of YOY SMB collected and composite samples generated, changing the frequency of YOY SMB collection in certain Areas of Operable Unit 5, and altering the protocols and procedures to select the individual YOY SMB for compositing. The Permit Application submitted by Wood in August of 2018 to the Michigan Department of Natural Resources (MDNR) for requested approval for the collection of 11 composite samples, with each sample typically comprised of 3-4 fish (about 20 total grams), from 18 monitoring locations and estimated approximately 462-616 YOY SMB would be need to be collected under the proposed program during the 2018 LTM event. During earlier LTM permit discussions with MDNR Fisheries, in June of 2018, Wood proposed the collection of up to 950 YOY SMB to generate 11 composite samples since composites historically required up to 6 YOY SMB to generate a 20 gram sample, but cited that collecting 11 composites may be an unrealistic goal based on previous experience collecting YOY SMB at the Site. The text in the current USEPA-approved LTM Plan authored and being executed by Wood states: "Samples will consist of four to six YOY (minimum of 20 grams (g) per composite) that range from 3.1 to 4.7 inches TL. The length of the smallest fish included in each composite sample should be within approximately 90 percent of the length of the largest fish included in the same composite sample (CDM 1999)." Prior to turning over LTM responsibilities to the PRP's in 2016, the MDEQ completed the Site-wide LTM activities. The MDEQ-authored LTM Plan included collection of YOY SMB and the MDEQ plan states: "20 YOY smallmouth bass (2 to 5 inches total length) to create five composite samples of four fish each". The protocols for generating YOY SMB samples described in the two documents are consistent which gives the data continuity and gives the LTM program "power".

In June of 2018, after reviewing the Permit Application, the MDNR requested an analysis from Wood demonstrating the benefit of temporarily but substantially increasing the collection number of YOY SMB due to potential negative impacts to the SMB population. The question becomes whether or not the proposed changes of fish tissue collection, including:

- on a yearly basis for a limited period of time (4 years was proposed),
- in certain Areas (Areas 4, 5 and 6 were proposed), and
- temporarily increasing the sample number (11 was proposed)

will provide data that is more meaningful for decision making than the current LTM approach. This concern is particularly relevant considering that the contaminant trends (i.e., rates of contaminant decline) we would expect to see would likely require much longer monitoring timeframes, perhaps on the order of decades, to accurately quantify. Furthermore, it is unclear how varying the protocols and procedures to select the individual YOY SMB for compositing (e.g. varying the number of fish per composite, changing the protocols for composite generation, temporary increases in sample collection, reducing the mass per composite sample to increase sample numbers, etc.) will impact data usability and comparability. At this time, MDEQ believes additional discussion of the data quality objectives and an in-depth analysis (e.g. power analysis, simulation, etc.) is still required to determine the overall project value of modifying the LTM protocols as suggested by Wood. Such analysis was requested from Wood by the MDEQ and MDNR in July of 2018. Wood was unable to complete the analysis requested by the State of Michigan prior to initiating LTM activities in September of 2018 and therefore the MDNR issued a permit that reduced the allowable number of YOY SMB to 5 composite samples per monitoring location, consistent with previous LTM events.

As stated above, Wood is requesting to vary several parameters within the LTM. Before such variations are approved, Wood should consider the impact of varying each individual parameter and the collective impact of varying multiple parameters, and present the findings to the USEPA, the MDEQ and the MDNR. The MDEQ is willing to engage and assist Wood in the analysis, as needed and requested. Additionally, while the collection of SMB is currently permitted by the MDNR, changes to the health of the SMB population, the data needs of the Superfund project, or other factors may result in the need to abandon YOY SMB collection in the future and/or utilize a surrogate, such as semi-permeable membrane devices, to monitor changes in SMB tissue concentration and determine when sample collection is justified and necessary.